

In the Claims:

Claim 1 (Currently Amended). A shoulder orthosis device for effecting rotational movement of a lower arm portion of a patient's arm about a central longitudinal axis of a humerus bone of an upper arm portion of the patient's arm, a hand with a palmar surface being connected to the lower arm portion of the patient's arm, comprising:

a lower arm section configured for receiving the lower arm portion, the lower arm section configured, dimensioned, and arranged for maintaining the lower arm portion substantially orthogonal to the upper arm portion; and

a drive member operably connected to the lower arm section proximate the elbow and including a gear connected to the lower arm section having an axis substantially coincidental with the central longitudinal axis of the humerus and manually operable by the patient to rotate the lower arm portion about the central longitudinal axis of the humerus bone such that the lower arm portion is maintained substantially orthogonal to the upper arm portion,

said lower arm section holding the hand of the patient with the palmar surface of the hand of the patient coplanar with said drive member axis,

whereby during at least a portion of the rotation of said gear, the humerus is rotated, through its connection with the lower arm portion of a patient's arm, about its longitudinal axis, and body tissue in the shoulder joint is thereby stretched.

Claim 2 (Original). The shoulder orthosis device according to claim 1, wherein the lower arm section comprises a lower cuff configured to receive and grip the lower arm portion.

Claim 3 (Currently Amended). The shoulder orthosis device according to claim 2, wherein the lower arm section further comprises a hand cuff spaced apart from the lower cuff, the hand cuff being configured to receive and grip a hand portion of the lower arm portion and to hold the palmar surface of the hand coplanar with said drive member axis.

Claim 4 (Currently Amended). ~~The~~ A shoulder orthosis device ~~according to claim 3, wherein for~~  
effecting rotational movement of a lower arm portion of a patient's arm about a central  
longitudinal axis of a humerus bone of an upper arm portion of the patient's arm, comprising:

a lower arm section configured for receiving the lower arm portion, the lower arm section  
configured, dimensioned, and arranged for maintaining the lower arm portion substantially  
orthogonal to the upper arm portion, the lower arm section including a lower cuff configured to  
receive and grip the lower arm portion and a hand cuff spaced apart from the lower cuff, the  
hand cuff being configured to receive and grip a hand portion of the lower arm portion, the lower  
arm section further comprises including an outer and inner channel members, wherein the lower  
cuff is attached to the outer channel member and the hand cuff is attached to the inner channel  
member; and

a drive member operably connected to the lower arm section proximate the elbow and including  
a gear connected to the lower arm section having an axis substantially coincidental with the  
central longitudinal axis of the humerus and manually operable by the patient to rotate the lower  
arm portion about the central longitudinal axis of the humerus bone such that the lower arm  
portion is maintained substantially orthogonal to the upper arm portion,

whereby during at least a portion of the rotation of said gear, the humerus is rotated, through its  
connection with the lower arm portion of a patient's arm, about its longitudinal axis, and body  
tissue in the shoulder joint is thereby stretched.

Claim 5 (Original). The shoulder orthosis device according to claim 4, wherein the outer and inner channel members are slidably connected.

Claim 6 (Cancelled).

Claim 7 (Previously presented). The shoulder orthosis device according to claim 1, wherein the drive member rotates the lower arm section from a first position to a second position.

Claim 8 (Previously presented). The shoulder orthosis device according to claim 1, wherein the drive member rotates the lower arm section from the second position to a third position.

Claim 9 (Currently Amended). The shoulder orthosis device according to claim 1, further comprising an upper arm section rotatably connected to the lower arm section, such that the lower arm section is substantially orthogonal to the upper arm section.

Claim 10 (Currently Amended). ~~The A~~ shoulder orthosis device ~~according to claim 9, wherein~~  
for effecting rotational movement of a lower arm portion of a patient's arm about a central longitudinal axis of a humerus bone of an upper arm portion of the patient's arm, comprising:

a lower arm section configured for receiving the lower arm portion, the lower arm section configured, dimensioned, and arranged for maintaining the lower arm portion substantially orthogonal to the upper arm portion; and

a drive member operably connected to the lower arm section proximate the elbow and including a gear connected to the lower arm section having an axis substantially coincidental with the central longitudinal axis of the humerus and manually operable by the patient to rotate the lower arm portion about the central longitudinal axis of the humerus bone such that the lower arm portion is maintained substantially orthogonal to the upper arm portion;

an upper arm section rotatably connected to the lower arm section, such that the lower arm section is substantially orthogonal to the upper arm section, the upper arm section comprises including a lower channel member slidably affixed to an upper channel member;

whereby during at least a portion of the rotation of said gear, the humerus is rotated, through its connection with the lower arm portion of a patient's arm, about its longitudinal axis, and body tissue in the shoulder joint is thereby stretched.

Claim 11 (Original). The shoulder orthosis device according to claim 10, wherein the upper arm section further comprises an upper cuff attached to the upper channel member, the upper cuff being configured to receive and grip the upper arm portion.

Claim 12 (Original). The shoulder orthosis device according to claim 9, wherein the upper arm section is adjustable to align the upper arm portion with a glenoid cavity of a shoulder joint.

Claim 13 (Original). The shoulder orthosis device according to claim 9, further comprising a base section, wherein the upper arm section is pivotally connected to the base section.

Claim 14 (Original). The shoulder orthosis device according to claim 13, further comprising a secondary drive member interposed between the base section and the upper arm section, the secondary drive member adjusting an angle between the base section and the upper arm section to align the upper arm portion with a glenoid cavity of a shoulder joint.

Claim 15 (Currently Amended). A shoulder orthosis device for effecting rotational movement of a lower arm portion of a patient's arm about a central longitudinal axis of a humerus bone of an upper arm portion of the patient's arm, a hand with a palmar surface being connected to the lower arm portion of the patient's arm, comprising:

an upper arm section defining an upper arm section longitudinal axis;

a lower arm section rotatably connected to the upper arm section, the lower arm section configured, dimensioned, and arranged with respect to the upper arm section such that a lower arm section longitudinal axis is substantially orthogonal to the upper arm section longitudinal axis, the lower arm section being configured to receive, grip, and maintain the lower arm portion substantially orthogonal to the upper arm portion;

a manually operated drive member connected to the lower arm section proximate the elbow and including a gear connected to the lower arm section having an axis substantially coincidental with the central longitudinal axis of the humerus, the drive member operable by the patient to move the lower arm section relative to the upper arm section such that the lower arm portion is rotated about the central longitudinal axis of the humerus bone while the lower arm portion remains substantially orthogonal to the upper arm portion, whereby during at least a portion of the rotation of said gear, the humerus is rotated, through its connection with the lower arm portion of a patient's arm, about its longitudinal axis, and body tissue in the shoulder joint is

thereby tensioned, said lower arm section holding the hand of the patient with the palmar surface of the hand of the patient coplanar with said drive member axis; and

means associated with the manually operated drive member operative to maintain a position of said gear when operation of said manually operated drive member is interrupted.

Claim 16 (Original). The shoulder orthosis device according to claim 15, wherein the length of the upper arm section is adjustable.

Claim 17 (Original). The shoulder orthosis device according to claim 15, wherein the upper arm section further comprises an upper cuff configured to receive and grip the upper arm portion.

Claim 18 (Original). The shoulder orthosis device according to claim 15, wherein the position of the upper arm section is adjustable to align the upper arm portion with a glenoid cavity of a shoulder joint.

Claim 19 (Original). The shoulder orthosis device according to claim 15, wherein the length of the lower arm section is adjustable.

Claim 20 (Original). The shoulder orthosis device according to claim 15, wherein the lower arm section further comprises a hand cuff longitudinally disposed on the lower arm section spaced apart from the lower cuff, said hand cuff holding the palmar surface of the hand coplanar with said drive member axis.

Claim 21 (Original). The shoulder orthosis device according to claim 15, further comprising a base section, wherein the upper arm section is pivotally connected to the base section.

Claim 22 (Original). The shoulder orthosis device according to claim 21, further comprising a secondary drive member interposed between the base section and the upper arm section, the secondary drive member adjusting an angle between the base section and the upper arm section to align the upper arm portion with a glenoid cavity of a shoulder joint.

Claim 23 (Previously Presented). A shoulder orthosis device for effecting rotational movement of a lower arm portion of a patient's arm about a central longitudinal axis of a humerus bone of an upper arm portion of the patient's arm, comprising:

a base section shaped to conform to the patient's trunk;

an upper arm section pivotally attached to the base section, the upper arm section defining an upper arm section longitudinal axis;

a lower arm section rotatably connected to the upper arm section, such that a lower arm section longitudinal axis is substantially orthogonal to the upper arm section longitudinal axis, the lower arm section including an lower cuff and a hand cuff configured to receive, grip, and maintain the lower arm portion substantially orthogonal to the upper arm portion; ~~and~~

a manually operated drive member connected to the lower arm section proximate the elbow and including a gear connected to the lower arm section having an axis substantially coincidental with the central longitudinal axis of the humerus, the drive member operable by the patient to move the lower arm section relative to the upper arm section such that the lower arm portion is rotated about the central longitudinal axis of the humerus bone while the lower arm portion remains substantially orthogonal to the upper arm portion, whereby during at least a portion of the rotation of said gear, the humerus is rotated, through its connection with the lower arm portion of a patient's arm, about its longitudinal axis, and body tissue in the shoulder joint is thereby tensioned;

means associated with the manually operated drive member operative to maintain a position of said gear when operation of said manually operated drive member is interrupted;

means associated with the manually operated drive member operative to reverse the direction of rotation of said gear; and

means connected to said upper arm section operative to align the upper arm portion with a glenoid cavity of a shoulder joint.

Appl. No. 10/760,598  
Amendment Dated November 19, 2008  
Reply to Office Action of August 19, 2008

Claim 24 (Previously Presented). The shoulder orthosis device of claim 23, wherein the gear is disposed below the elbow.